

Rationale for Issuance of Revised Advisory on Methylmercury and Fish consumption

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The publication of the congressionally mandated National Academy of Sciences/National Research Council (NAS/NRC) report on the hazards and risks of methylmercury via the consumption of fish prompted the FDA to consider whether to change the consumer advisory that it issued in 1994 on methylmercury and fish consumption. That advisory was directed primarily toward pregnant women and women of childbearing age who may become pregnant in order to protect the developing unborn child from the possibility of harm from excessive exposure to methylmercury during pregnancy. It was intended to be a highly conservative advisory in that it was designed to limit or minimize any increase in the consumer's methylmercury body burden due to the consumption of commercial seafood, regardless of how low the consumer's body burden may already have been.

At the same time, in response to the NAS report, the Environmental Protection Agency (EPA) also revised the basis for its current RfD so that it was identical to that provided in the NAS/NRC report.

As a result of the review, FDA revised its advisory on January 12, 2000. In doing so, the major factors that the FDA took into account were 1) several recent, large-scale studies of methylmercury exposure in human populations (e.g., from the Seychelles, Faroes, and New Zealand), 2) data regarding fish consumption and mercury concentration, 3) the health benefits of a balanced diet that includes fish, and 4) feedback from focus groups that reacted to different types of consumer messages. The major points gleaned from the focus groups were to keep the message simple and direct. There was a desire that, to be understandable and easy to follow, the advisory focus on the fish to "avoid" and those that are "safe" to eat. By contrast, the 1995 advisory discussed the limitation of consumption of certain species, rather than avoidance, and thus was potentially confusing. In fact, the focus groups indicated that a "limit consumption" message for pregnant women would be interpreted as a "do not consume" message.

As in the previous FDA advisory, the premise of the specific recommendations to several at risk groups was to limit or minimize any measurable increase in body burden[s] via the consumption of specific species of fish containing high levels of MeHg.

The advisory recommends that pregnant women and women of childbearing age who may become pregnant avoid identified fish species with the highest average amounts of methylmercury, rather than limit their consumption to a serving per month, as called for in the previous advisory. As indicated above, the reason for this change was the perception by focus groups that a limitation to once per month was essentially a recommendation to abstain. The focus groups preferred a simple recommendation of avoidance under those circumstances.

FDA also added king mackerel and tilefish to its list of fish (previously only shark and swordfish) that these groups should avoid. The reason for these additions was that data indicated the average levels of methylmercury in these species were essentially the same as for shark and swordfish.

FDA gave particular attention to the consumption of canned tuna because it is the primary fish consumed by the largest segment of the fish eating population. Information provided by the National Food Processors Association and FDA's own assessment indicated that, while canned tuna is the dominant seafood product in the U.S. market in terms of total pounds consumed, consumption is not as great as anecdotal observations would indicate. These data showed consumption of canned tuna at the highest level (the 99th percentile) to be only approximately 7 oz. per week. For this reason, the agency concluded that specific advice for canned tuna was not necessary and should be subsumed within the advice dealing with fish consumption in general.

FDA reached the same conclusion for fresh/frozen tuna. Although the fish used for fresh/frozen tuna tend to be much larger than those in canned tuna, their average methylmercury level is only a third of that found in shark and swordfish, and are actually closer to the level for canned tuna. Moreover, fresh/frozen tuna are consumed relatively infrequently compared to the major commercial species like canned tuna, pollock, salmon, shrimp and catfish.

The intent of the advisory is to recommend a "balanced" diet of seafood consumption that would inherently keep methylmercury levels low. The advisory factored in : (a) varieties of fish/mercury levels; (b) consumption levels; and (c) uncertainties inherent in studies to date (Faroes, Seychelles, New Zealand, etc.). The advisory is designed to help pregnant women and women of childbearing age -avoid consumption of fish species from the higher end of the methylmercury range and encourage consumption of a variety of species that would maintain good nutrition and inherently keep methylmercury levels low.

The part-of the advisory that deals with "safe" fish is designed to give advice on the amount of these species of fish that pregnant women and women of childbearing age who may become pregnant could consume without undue risk of increasing their body burden for methylmercury. To provide this advice, FDA considered two factors. The first was the range of methylmercury found in commercial fish other than the high-end species. This range is fairly tight, ranging from trace levels to about 0.4 ppm. The second factor was U.S. consumption patterns, which tend to favor canned tuna, shrimp, and catfish. The "balanced diet" took into account the relatively low amounts of methylmercury in these species.

The advisory notes the potential health benefits of eating fish and indicates that even the vulnerable population can safely eat 12 oz. per week of most types of cooked fish. This is consistent with a recommendation by the American Heart Association about the benefits of fish consumption, particularly the cardiovascular benefits.

Although the focus of the advisory is on pregnant women and women of child-bearing age who may become pregnant, it also addresses nursing women and their young children because of uncertainties associated with potential adverse effects on the developing nervous system of newborns. These latter groups are being included as a matter of prudence.